



United States
Department of
Agriculture

Agricultural
Research
Service

National
Program
Staff

Beltsville, Maryland
20705

February 24, 1986

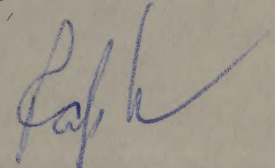
SUBJECT: Screwworm Research and Methods Development Meetings at Tuxtla Gutierrez

TO: ✓ R. L. Mangan
C. J. Whitten
L. E. LaChance

The annual screwworm research and methods development meeting has been scheduled for May 8 at Tuxtla Gutierrez, Mexico. In addition, I would like to have separate ARS meetings on screwworm genetics research and an overall meeting on screwworm research in ARS as follows:

Date	Subject	Participants
5/6/86	Screwworm Genetics Research	Mangan, Taylor, Whitten, LaChance, Bram
5/7/86	Screwworm Research in ARS	All ARS scientists at Tuxtla Gutierrez, Welch, Brown, Whitten, LaChance, Bram
5/8/86	Screwworm Research & Methods Development	All ARS scientists; Screwworm Commission

Please reserve this week for subject meetings and notify appropriate scientists of their participation. I would appreciate your suggested agenda items for each of the meetings by April 1, 1986.


RALPH A. BRAM
National Program Leader
Insects Affecting Man & Animals
and Parasitology

cc:
J. R. Johnston
K. L. Lebsock
W. G. Hart

REFERENCE SLIP

2-27-86

TO

Bob Mangan

☐

ACTION

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REMARKS

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UNCLAS GUATEMALA 01993

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FOR FAS/SHARP/WHAD/LEE/APHIS/VS/ATWELL/MEXICO CITY FOR
AG COUNS/MONTEL/APHIS/VS/NOVY

E.O. 12356: N/A

TAGS: NONE

SUBJECT: TESTING OF NEW SCREWORM FLY STRAIN IN
GUATEMALA

1. FOR THE RECORD, GUATEMALAN MINISTRY OF AGRICULTURE
OFFICIALS HAVE ADVISED US OF THE FOLLOWING
REQUIREMENTS REGARDING SHORT-TERM TEST PROGRAM FOR NEW
STRAIN OF FLY IN GUATEMALA.

(A) GUATEMALA PREFERS USE OF GUATEMALAN BASED AIRCRAFT
AND GUATEMALAN PILOTS.

(B) GUATEMALA HAS CONSIDERABLE EXPERTISE AVAILABLE TO
PROVIDE ON GROUND ASSISTANCE FOR STRAIN TESTING.
HOWEVER, IF NECESSARY GUATEMALA WILL ALLOW ENTRY OF
ONE OR TWO MEXICAN SPECIALIST FOR SHORT TIME PERIOD

(15 TO 20 DAYS) TO TRAIN GUATEMALAN PERSONNEL.

(C) MINISTRY OF AGRICULTURE OFFICIALS BELIEVE THEY
POSSESS SUFFICIENT PERSONNEL, RESOURCES, ETC TO CARRY
OUT STRAIN TESTING WITHOUT INVOLVEMENT OF MEXICANS.
AGATT GUATEMALA CONCURS AFOREMENTIONED POSITION.

2. IN ADDITION AGATT SUGGESTS THAT APHIS/VS CONSIDER
THE ESTABLISHMENT OF SMALL SCREWORM FLY BREEDING AND
IRRADIATION INSTALLATION IN GUATEMALA TO SERVICE
ERADICATION PROGRAM FOR GUATEMALA. FURTHERMORE, AGATT
SUGGESTS THAT APHIS/VS CONSIDER SIMILAR MOVES FOR
SCREWORM ERADICATION EFFORTS IN EL SALVADOR AND
HONDURAS.

3. AGATT IS OF THE OPINION THAT PRESENT REGIONAL
SCREWORM ERADICATION CONCEPT INVOLVING MEXICO WILL
NOT PROVE TO BE POLITICALLY FEASIBLE OR ECONOMICALLY
VIALE.

BT

#1993

REFERENCE SLIP

3-10-86

TO Bob Mangan

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REMARKS

FROM Ralph Bram

500

REFERENCE SLIP
DATE 3-10-86

3-10-86

Robert J. [unclear]
[unclear]

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Robert J. [unclear]
[unclear]

POLYTENE CHROMOSOMES, KARYOTYPE CORRELATIONS, AND POPULATION
CYTOLOGY OF THE PRIMARY SCREWORM FLY, COCHLIOMYIA HOMINIVORAX
(DIPTERA: CALLIPHORIDAE)

Dev	, Vas		
LaChance	, Leo	E.	3915
Whitten	, Chandler	J.	3915

CRIS Work Unit: 3915-20480-006

Interpretive Summary:

Screwworms are parasites of all live, warm-blooded animals wherever these parasites are found. Currently, these insects are being eradicated from the U.S. and Mexico by releasing sterile laboratory-reared male screwworm flies which, after mating with native female flies, cause a break in the reproductive cycle of the females. Thus, the release males must be genetically, hence behaviorally, compatible with the native insects or eradication cannot be achieved. In previous studies, differences in the structure of chromosomes have been indications of reproductive isolation among closely related species. Applying a sensitive technique to compare for minute differences in the genetic make-up between screwworms sampled from different geographic areas in Mexico, this research has demonstrated that all populations sampled were remarkably similar with respect to the fine structure of their chromosomes. These results have indicated that the various screwworm populations were alike to the extent that it is highly unlikely that one population has become reproductively isolated from any of the others. Thus, the managers of the eradication program should expect the sterile males to be genetically compatible with native populations present in Mexico.

Technical Abstract:

Standard photomaps of trichogen cell polytene chromosomes of the primary screwworm fly, *Cochliomyia hominivorax* are presented. Correlations between meiotic and polytene chromosome karyotypes were established using radiation induced translocations, and percent chromosome lengths and arm ratios as markers. Polytene chromosome analyses of hybrids between various isofemale lines originating from the Mexican States of Colima, Chiapas, Michoacan, Oaxaca and Quintana Roo, and from the island of Jamaica did not reveal any chromosomal differences, e.g. inversions or deletions, and the banding patterns were identical. The homosequential banding patterns in this species and apparent chromosomal homologies with other Calliphorid species suggest that the chromosomes have remained largely conserved during evolution in the family Calliphoridae.

Submitted to: Journal of Heredity

Whitten , C. J.
USDA-ARS-MRRL
Screwworm Research Center
P.O. Box 5674
Fargo, MD 58105

(701)237-5771 FTS 783-5354

PHEROMONE-MEDIATED COPULATORY RESPONSES OF THE SCREWWORM FLY,
COCLIOMYIA HOMINIVORAX

Hammack, Leslie 3915

CRIS Work Unit: 3915/20480/007

Interpretive Summary:

Screwworms (larvae of) flies could cause losses to the U.S. livestock industry well in excess of \$100 million annually, except for the sterile-male screwworm control program currently based in southern Mexico. The screwworm control program is the first and foremost example of effective population suppression on a large scale using sterilized released insects, but sporadic unexplained failures in control or requirements for excessive numbers of released flies have occurred. Ultimately, program success depends upon the ability of factory-reared sterilized males to mate with females of the wild population. A sex pheromone playing a key role in the release of male mating behavior was demonstrated on female screwworm flies. Evidence was also found to suggest changes in the production of and/or response to pheromone with laboratory colonization. Knowledge of the sex pheromone system will be useful for developing methods to monitor the quality of screwworms mass reared for sterile releases and to evaluate their mating competitiveness with wild populations from different habitats and geographic locations.

Technical Abstract:

A bioassay based on male copulatory responses occurring on contact with dead decoy insects was used to confirm the existence of a sex pheromone in the screwworm fly, *Cochliomyia hominivorax*. Males responded to female but not male decoys. Mated and virgin females were equally stimulatory. Activity was abolished when females were washed with hexane but partially restored by treatment with crude hexane extract of females. Responses decreased when extracts were diluted and when the number of females extracted per ml of hexane was decreased from 20 to 1 in the preparation of extracts concentrated to 0.4 female per ul. Sexually mature female decoys of the 009 strain, the most laboratory adapted of three strains examined in intrastain tests, produced few copulatory attempts compared with those of Aracruz or DE-9 strains. However, newly emerged 009 as well as Aracruz females elicited responses from about 80% of sexually mature males. Those of the DE-9 strain stimulated fewer than 1%. The observation that 009 females were maximally stimulatory before becoming receptive to mating suggests that these strain differences resulted from laboratory colonization.

Submitted to: Journal of Chemical Ecology

Hammack, Leslie
USDA-ARS-MRRL
P.O. Box 5674
State Univ. Station
Fargo, ND 58105

(701)237-5771 FTS 783-5354

CYTOGENETIC STUDIES OF SCREWORM POPULATIONS FROM SOUTHERN MEXICO
AND JAMAICA

LaChance	, Leo	E.	3915
Whitten	, C.	J.	3915

CRIS Work Unit: 3915/20480/006

Interpretive Summary:

The cooperative Mexico/U.S. screwworm eradication program in Mexico is based on the mass-rearing, sterilization and releases of large numbers of sterile flies to mate with the native population. The major assumption is that the factory reared insects will mate randomly with the native population. Recently, some authors have claimed that in certain areas of Mexico there exist populations of screwworms that are reproductively isolated and may even belong to different species. ARS scientists have disagreed with this view. The study was conducted on screwworm populations collected at 23 locations in 5 southern Mexican states and on the Island of Jamaica. The chromosomes of all 23 lines were studied and a detailed analysis of the karyotypes (chromosome morphology based on length and arm ratios) was conducted. The chromosomes of hybrids made by crossing different lines were also studied. We have found no evidence that would support the hypothesis that screwworm populations in southern Mexico and Jamaica consist of more than 1 species. It does not appear that any of the populations are reproductively isolated. The present data can be used as a basis for future comparison with screwworm populations from Central America, if the eradication program is eventually expanded to include those countries.

Technical Abstract:

The karyotypes of 23 lines of screwworm flies, *Cochliomyia hominivorax* (Coquerel), originating as isofemale lines collected in the Mexican States of Colima, Michoacan, Oaxaca, Chiapas, Quintana Roo, and 1 line from the Island of Jamaica, were investigated. Detailed analysis of the metaphase I meiotic chromosomes from male primary spermatocytes revealed minor differences between lines having the longest and shortest means for the percentage of the total chromosome length of the X and Y chromosomes but no significant differences in the 5 autosomes or overall strain differences. Comparison of mean arm ratios for the five autosomes between strains indicated no overall strain differences, although the F test for autosome V was significant. Analysis of the karyotypes of 55 between-line hybrids to detect chromosome rearrangements showed that no isofemale lines possessed chromosome rearrangements. The results do not indicate the existence of reproductive isolation between any of the lines or differences indicative of more than intraspecific variation in karyotypes.

Submitted to: Annals Entomological Society of
America

LaChance , Leo E.
USDA-ARS-MRRL
P.O. Box 5674
Fargo, MD 58105

NONE

FTS 783-5291

REFERENCE SLIP

3-11-86

TO

Bob Mangan
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REMARKS

INCOMING TELEGRAM

R. Biano
BK

Rcv: @1IM/4.16483 Line: 4

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ZNR UUUUU ZZH

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FM AMEMBASSY GUATEMALA

TO USDA/FAS WASHDC

BT

UNCLAS GUATEMALA 02428

FAA/AA
AD
APHIS
ANS

TOFAS 49

FOR FAA/SHARP/WHAD/LEE/APHIS/VS/MEXICO CITY FOR AG
COUNS/APHIS/VS

E.O. 12356: N/A

TAGS: NONE

SUBJECT: SIGNING OF DOCUMENTS RELATING TO USDA
GUATEMALAN SCREWORM ERADICATION PROGRAM

REF (A) ANLAUF-LEE TELCON

FOR THE RECORD, OFFICE OF AGRICULTURAL AFFAIRS HAS
BEEN ADVISED BY THE AMBASSADOR AND DCM OF THE EMBASSY
THAT ALL AGREEMENTS BETWEEN THE US AND GUATEMALA,
INCLUDING USDA AGREEMENTS, WILL BE SIGNED BY THE
AMBASSADOR.

FURTHERMORE, THE AMBASSADOR HAS INDICATED TO AGATT
THAT UPON RECEIPT OF AGREEMENTS TO BE SIGNED A
DIPLOMATIC NOTE WILL BE SENT BY EMBASSY TO MINISTRY OF
FOREIGN AFFAIRS OUTLINING PURPOSE AND INTENT OF
AGREEMENT. IN ADDITION, NOTE WILL CARRY STATEMENT TO
THE EFFECT OFFICE OF AGRICULTURAL AFFAIRS HAS THE
RESPONSIBILITY FOR TOTAL COORDINATION OF ALL USDA
PROGRAMS, INCLUDING THE SCREWORM ERADICATION PROGRAM,
AND APHIS/VS WILL BE RESPONSIBLE FOR DAY-TO-DAY
TECHNICAL ASPECTS OF THE PROGRAM.

BT

#2428

3/11
prz 3/11/86

NNNN

4755210EVDFL

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REFERENCE SLIP

4-23-86

TO

Bob Mangan
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REMARKS

UNCLASSIFIED
Department of State

INCOMING
TELEGRAM

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FM AMEMBASSY MEXICO
TO SECSTATE WASHDC 1409

UNCLAS MEXICO 08207

PASS AGRICULTURE ELECTRONICALLY FOR JOHN GOLDEN, OGC;
DR. WILLIAM BUISCH, APHIS

E.O. 12356: N/A

TAGS: EAGR, MX

SUBJECT: BILATERAL SCREWORM AGREEMENT: MODIFICATION
-- OF ARTICLE 5

FOLLOWING ARE THE VERBATION TEXTS OF THE EMBASSY'S
NOTE AND THAT OF THE SECRETARIAT FOR FOREIGN RELATIONS
THAT EFFECTED THE DESIRED MODIFICATION OF ARTICLE 5
OF THE SUBJECT AGREEMENT.
BEGIN DIPLOMATIC NOTE.

-- EMBASSY OF THE
-- UNITED STATES OF AMERICA

NO. 637

-- THE EMBASSY OF THE UNITED STATES OF AMERICA PRESENTS
ITS COMPLIMENTS TO THE SECRETARIAT OF FOREIGN RELATIONS
OF THE UNITED MEXICAN STATES, AND REFERS TO ITS NOTE
NUMBER 300620 OF MARCH 6, 1986, WHICH CONTAINS THE TEXT
OF A MODIFICATION OF ARTICLE 5 OF THE 1972 AGREEMENT FOR
THE ERADICATION OF THE SCREWORM. THE DEPARTMENT OF STATE
AGREES TO MODIFY ARTICLE 5, INSTEAD OF ARTICLE 22 AS IT
PREVIOUSLY PROPOSED. IT ALSO AGREES TO THE TEXT PROPOSED
IN THE AFOREMENTIONED NOTE, WITH THE ADDITION OF THE
PHRASE SHOWN BELOW IN CAPITAL LETTERS:

-- "AFTER THE ESTABLISHMENT OF A STERILE FLY BARRIER
IN THE ZONE WHICH INCLUDES MERIDIAN 93, THE COMMISSION
MAY EXTEND ITS PROGRAM THROUGHOUT THE REST OF MEXICO.
BEGIN CAPITAL LETTERS - IN ADDITION TO THE PROGRAM
ESTABLISHED BY THIS AGREEMENT TO BE CARRIED OUT IN MEXICO,
END CAPITAL LETTERS - THE COMMISSION MAY, SUBJECT TO THE
APPROVAL OF BOTH GOVERNMENTS, COOPERATE WITH OTHER
COUNTRIES AND ORGANIZATIONS TO CARRY OUT THE PURPOSES
OF THIS AGREEMENT, AND IS AUTHORIZED, SUBJECT TO THE
APPROVAL OF BOTH GOVERNMENTS, WHICH SHALL BE GRANTED
THROUGH THE SECRETARIAT OF FOREIGN RELATIONS IN THE CASE
OF MEXICO, AND THROUGH THE DEPARTMENT OF STATE IN THE
CASE OF THE UNITED STATES, TO NEGOTIATE AND CONCLUDE
AGREEMENTS WITH THE CENTRAL AMERICAN COUNTRIES AND PANAMA,
WITH THE PURPOSE OF ESTABLISHING TERMS AND CONDITIONS OF,
AND CONTRIBUTIONS TO, SIMILAR COOPERATIVE PROGRAMS FOR THE
ERADICATION OF SCREWORM IN THOSE COUNTRIES."

-- IF THE FOREGOING TEXT IS ACCEPTABLE TO THE GOVERNMENT
OF MEXICO, THIS NOTE, AND THAT WITH WHICH THE SECRETARIAT
OF FOREIGN RELATIONS ACCEPTS IT, WILL CONSTITUTE AN
AGREEMENT BETWEEN BOTH GOVERNMENTS BY WHICH ARTICLE 5
OF THE 1972 AGREEMENT WILL BE MODIFIED AS DESCRIBED ABOVE
AS OF THE DATE OF EXCHANGE OF SAID NOTES.

-- THE EMBASSY OF THE UNITED STATES OF AMERICA TAKES
THIS OPPORTUNITY TO RENEW TO THE SECRETARIAT OF FOREIGN
RELATIONS THE ASSURANCE OF ITS HIGHEST CONSIDERATION.

EMBASSY OF THE UNITED STATES OF AMERICA

-- MEXICO, D.F., MARCH 24, 1986

END DIPLOMATIC NOTE.
BEGIN DIPLOMATIC NOTE.

-- SECRETARIA DE
-- RELACIONES EXTERIORES
-- MEXICO

CH 0001 916 LA SECRETARIA DE RELACIONES EXTERIORES
SALUDA ATENTAMENTE A LA EMBAJADA DE LOS ESTADOS UNIDOS
DE AMERICA Y TIENE EL HONOR DE HACER REFERENCIA A SU NOTA
637, DEL 24 DE MARZO DE 1986, QUE CONTIENE UNA ADICION
AL TEXTO PROPUESTO POR MEXICO, MEDIANTE LA NOTA 300620,
DEL 6 DE MARZO DE 1986, PARA MODIFICAR EL ARTICULO 5 DEL
ACUERDO PARA LA ERRADICACION DEL GUSANO BARRENADOR DEL
GANADO, FIRMADO EN LA CIUDAD DE MEXICO EL 28 DE AGOSTO
DE 1972 Y PUESTO EN VIGOR A TRAVES DEL CANJE DE NOTAS EN
LA MISMA FECHA.

-- LA SECRETARIA DE RELACIONES EXTERIORES
MANIFIESTA ESTAR DE ACUERDO EN QUE EL TEXTO DEL ARTICULO
5 SEA MODIFICADO EN LOS SIGUIENTES TERMINOS:

-- "DESPUES DEL ESTABLECIMIENTO DE UNA
BARRERA DE MOSCAS ESTERILES EN LA ZONA QUE INCLUYE EL
MERIDIANO 93, LA COMISION PUEDE EXTENDER SU PROGRAMA AL
RESTO DE MEXICO. ADEMAS DEL PROGRAMA ESTABLECIDO POR
ESTE ACUERDO PARA EFECTUARSE EN MEXICO, LA COMISION PUEDE,
SUJETO A LA APROBACION DE AMBOS GOBIERNOS, COOPERAR CON
OTROS PAISES Y ORGANIZACIONES PARA LLEVAR A CABO LOS

PROPOSITOS DE ESTE ACUERDO, Y ESTA AUTORIZADA, SUJETO A
LA APROBACION DE AMBOS GOBIERNOS, OTORGADAS A TRAVES DE
LA SECRETARIA DE RELACIONES EXTERIORES EN EL CASO DE
MEXICO Y EN EL CASO DE LOS ESTADOS UNIDOS, A TRAVES DEL
DEPARTAMENTO DE ESTADO, PARA NEGOCIAR Y CONCLUIR ACUERDOS
CON LOS PAISES DE AMERICA CENTRAL Y PANAMA, A FIN DE
ESTABLECER LOS TERMINOS Y LAS CONDICIONES Y CONTRIBUCIONES
A PROGRAMAS SIMILARES DE COOPERACION PARA ERRADICAR EL
GUSANO BARRENADOR DE ESOS PAISES."

-- EN CONSECUENCIA, LA REFERIDA NOTA DE LA
EMBAJADA Y LA PRESENTE CONSTITUYEN UN ACUERDO ENTRE LOS
GOBIERNOS DE NUESTROS RESPECTIVOS PAISES PARA MODIFICAR,
EN LOS TERMINOS ARRIBA DESCRITOS, EL ARTICULO 5 DEL
ACUERDO PARA LA ERRADICACION DEL GUSANO BARRENADOR DEL
GANADO, A PARTIR DE ESTA FECHA.

-- LA SECRETARIA DE RELACIONES EXTERIORES
APROVECHA LA OPORTUNIDAD PARA REITERAR A LA EMBAJADA DE
LOS ESTADOS UNIDOS DE AMERICA LAS SEGURIDADES DE SU MAS
ALTA Y DISTINGUIDA CONSIDERACION.

-- MEXICO, D.F., A 2 DE ABRIL DE 1986.

END DIPLOMATIC NOTE.

UNCLASSIFIED

4/22
pk
4/22/86

TO: DR. RALPH BRAM
NATIONAL PROGRAM LEADER
USDA-ARS-NPS-LUVS
ROOM 211 BUILDING 005
BARC-WEST
BELTSVILLE, MARYLAND
20705

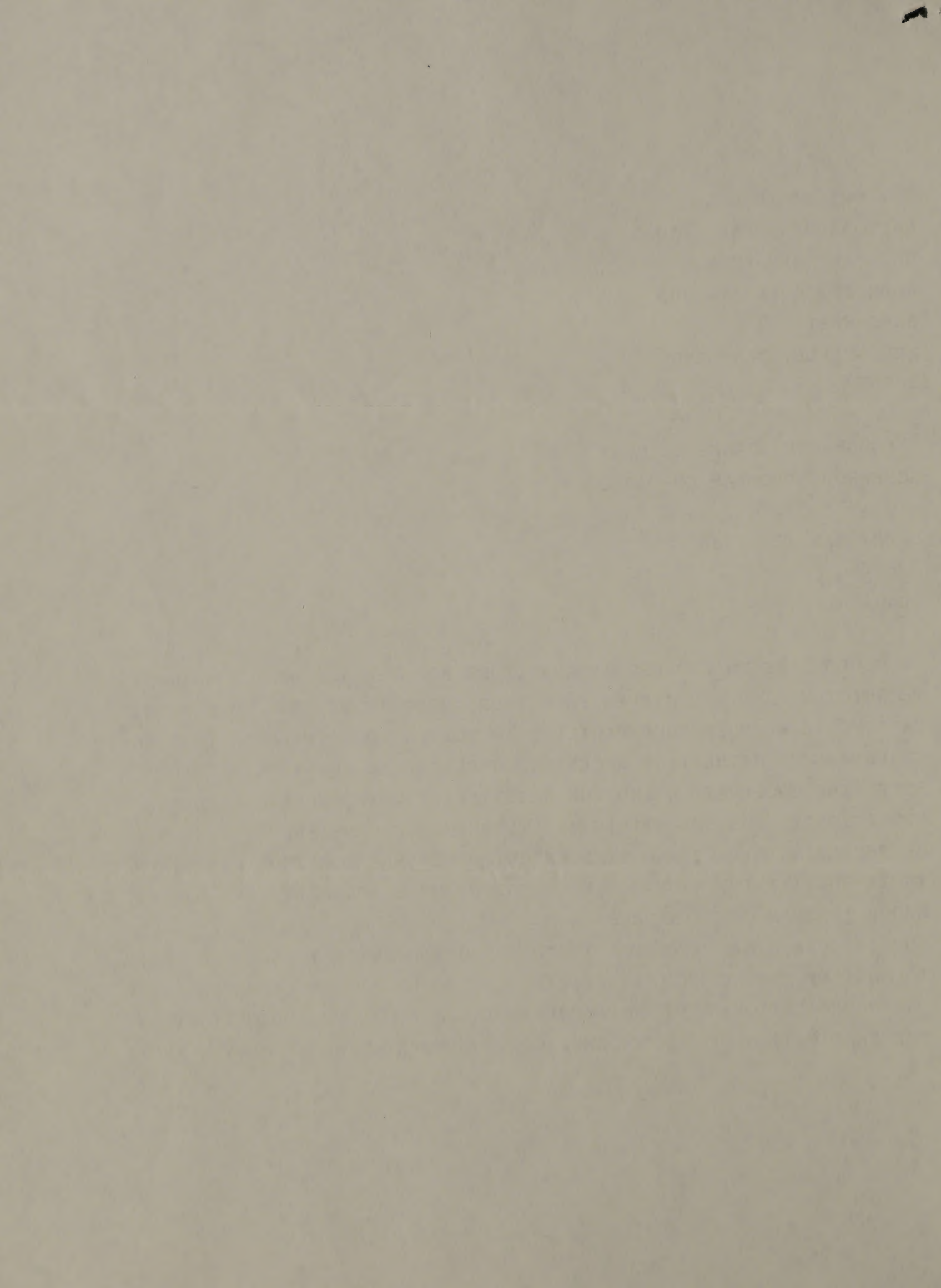
THROUGH: DR. JAMES E. NOVY
SCREWORM PROGRAM CO-DIRECTOR

DATE: MAY 12, 1986

DEAR RALPH,

I WOULD LIKE TO EXPRESS MY GRATITUDE FOR THE ASSISTANCE WHICH MY TECHNICIANS AND I RECIEVED FROM YOUR GROUP IN TUXTLA. DURING THE PAST MONTH WE USED YOUR FACILITY IN TUXTLA TO ENTER DATA INTO THE COMPUTERS FROM THE TEST RECENTLY COMPLETED IN THE YUCATAN. THE HELP, THE COOPERATION AND THE HOSPITALITY WHICH WE RECIEVED WAS EXCEPTIONAL. THE SCIENTISTS AND TECHNICIANS GAVE FREELY THE USE OF THEIR FACILITIES AND TIME WHICH I KNOW WAS DIFFICULT AT TIMES. THEIR HOSPITALITY MADE US FEEL THAT WE WERE ACTUALLY PART OF THE GROUP INSTEAD OF OUTSIDERS.

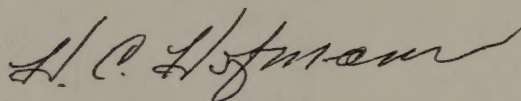
DURING OUR STAY IN TUXTLA I HAD THE OPPORTUNITY TO MEET AND TALK TO MOST OF THE SCIENTISTS WITHIN YOUR GROUP. I WAS IMPRESSED WITH THEIR DEDICATION AND COMMITMENT TO THEIR PROJECTS AND ULTIMATELY, THE ERADICATION OF SCREWORMS. FOR THE FIRST TIME IN MANY YEARS I



CAN SAY THAT A.R.S./TUXTLA HAS A TEAM THAT WILL LEAD OUR PROGRAM INTO NEW CONCEPTS AND TECHNOLOGY.

WITH COOPERATION SUCH AS THIS AND THE NEW IDEAS THAT ARE BEING DISCUSSED, I KNOW THAT OUR JOINT GOAL OF ERADICATION OF SCREWORMS FROM THE REST OF MEXICO AND CENTRAL AMERICA WILL PROGRESS RAPIDLY AND WITH GOOD WILL FROM OUR TWO ORGANIZATIONS.

SINCERELY YOURS,



H.C. HOFMANN

STAFF ENTOMOLOGIST

SCREWORM PROGRAM--MEXICO CITY

C.C. DR. ROBERT MANGUM A.R.S. TUXTLA ✓

C.C. DR. WILLIAM BUSH INTERNATIONAL PROGRAMS APHIS

C.C. DR. STWARD A.R.S. AUSTIN, TEXAS



May 13, 1986

SUBJECT: Screwworm Genetics Research

TO: ✓ R. L. Mangan
C. J. Whitten

Following is a summarization of the results of our meeting on screwworm genetics research that was held on May 9, 1986.

Objectives of Screwworm Genetics Research:

- a. To characterize field populations in order to assure that no genetic reproductive isolating mechanisms exist which could impede progress of the eradication effort.
- b. To develop genetically competitive strains for mass production.
- c. To develop new genetic technologies to monitor and prevent or reduce strain adaptation during mass production.
- d. To evaluate and characterize the inheritance of behavioral characteristics in the field in order to better understand the dynamics of the sterile insect technique and improve competitiveness of new strains for mass production.

Research Areas:

- a. Characterization of Populations. Both Fargo and Tuxtla Gutierrez will apply techniques to characterize field populations in southern Mexico and Central America. The Tuxtla Gutierrez laboratory and its satellite laboratory at San Jose, Costa Rica, have primary responsibility for field collection of isofemale lines. The following matrix illustrates the technologies to be applied by each laboratory.

<u>Technology</u>	<u>Laboratory</u>	<u>Status</u>
Cytogenetics	Fargo	LaChance will continue to look at chromosome measurements, etc., of selected isofemale lines and hybrids.
Polytene Chromosomes	Tuxtla	Taylor will develop capability to use as a gross survey technique.
mDNA Restriction Enzyme Mapping	Fargo	Roehrdanz will continue low level effort on selected isofemale lines and hybrids.
Electrophoresis	Tuxtla	Taylor will continue to apply this technology as a tool for characterization of populations.
	Fargo	Whitten will utilize this tool for research but not for population characterization.

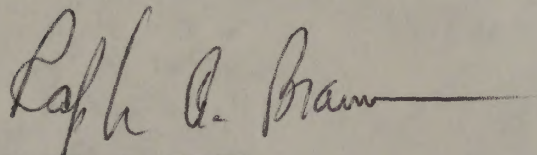
An ad hoc committee will develop a protocol for the sampling and genetic characterization of populations in the field and for the analysis of screwworm outbreaks north of the barrier zone. This committee will consist of Mangan (Chairman), Whitten, Taylor, and Thomas.

- b. Genetic Linkages. This research is necessary to develop fundamental knowledge which can be applied to solve a number of genetically related problems. Taylor will continue to pursue this avenue of research at Tuxtla Gutierrez.
- c. Heterosis. Progress to date has not provided sufficient evidence to advocate a multiple strain strategy in the production plant. Expert advice should be obtained from plant and animal breeders to determine if there are approaches that are being overlooked. If results are not more promising by the end of this year, the project should be terminated. Peterson will continue as the principal investigator at Fargo.
- d. Genetic Sexing. The ability to produce only male screwworms in the production plant seems to have considerable appeal. As a first step, Whitten at Fargo will continue to search for toxicant resistant (primarily pesticides) genes which can be transferred to the male. Taylor at Tuxtla Gutierrez is investigating the possibility of resistance to metabolic toxins and the application of translocations.

- e. Inheritance of Behavioral Traits. Knowledge of the inheritance of behavioral traits, such as mating acceptance and male aggressiveness, could improve new strain development, program strategies, and program evaluation. Mangan at Tuxtla Gutierrez and Whitten at Fargo will both conduct research in this area, keeping close contact to assure compatibility of objectives and approaches.
- f. Genetic Monitoring of the Production Strain. New technologies may now be available to monitor the rate and degree of adaptation (deterioration) of production strains. Improved knowledge of this process would make strain change decisions more scientific and programatically effective. An ad hoc committee, consisting of Whitten (Chairman), Mangan, Taylor, and two additional members to be appointed by the Screwworm Commission, will develop protocols for monitoring strain adaptation using the most modern technologies available.

CRIS Project:

A 5-year CRIS project on screwworm genetics and strain development of \$184,000 per year (net to location) with 1.5 SY's will be written by Mangan/Taylor for Tuxtla Gutierrez.



RALPH A. BRAM
National Program Leader

cc:

B. A. Stewart
K. L. Lebsock
D. R. Nelson
L. E. LaChance
W. W. Buisch, APHIS



United States
Department of
Agriculture

Animal and
Plant Health
Inspection Service

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IRD's MEMORANDUM No. 84-6

MAY 27 1986

Subject: Directory of Plant Protection and Quarantine (PPQ) and
Veterinary Services (VS) International Programs Personnel

To : PPQ-VS International Personnel

This memorandum revises IRD Memorandum No. 84-6 dated May 18, 1984.

A directory has been prepared of Plant Protection and Quarantine and Veterinary Services International Programs (IP) personnel which separates into three geographic regions, namely Latin America, Europe/Near East/Africa, and Asia/Pacific. The directory shows office locations and telephone numbers within the countries and the addresses for sending mail from the United States. It is the responsibility of individual PPQ and VS international personnel to review and update the mailing list by sending changes to the address indicated on page 30 of the directory. As changes are made in the enclosed list, revised pages, with no covering memorandum, will be forwarded to you.

Since it is necessary at times to reach you during nonworking hours, home telephone numbers are requested for all IP personnel. Please forward your home telephone number to the address listed on page 30 of the directory. Home telephone numbers will not be provided to individuals outside IP except to the Offices of the Deputies and on other special occasions when individually discussed with the affected personnel.

Personnel having an occasion to write to individuals in foreign countries should, as appropriate, refer them to international personnel stationed in or responsible for that foreign country and provide addresses in accordance with the enclosure.

G. Gregor Rohwer
Assistant Deputy Administrator
International Programs
Plant Protection and Quarantine

W. W. Buisch
Assistant Deputy Administrator
International Programs
Veterinary Services

Enclosure

UNITED STATES DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
INTERNATIONAL PROGRAMS

Plant Protection and Quarantine (PPQ)

Veterinary Services (VS)

HEADQUARTERS
Washington, DC

G. Gregor Rohwer
Assistant Deputy Administrator

William W. Buisch
Assistant Deputy Administrator

Secretary: Edna Nicholson

Secretary: Apryle Ritchey

PPQ-APHIS-USDA
Room 324-E, Administration Building
12th and Independence Avenue, SW.
Washington, DC 20250
Telecopier: (202) 472-5686
Telemail: GROHWER
Recorder: (202) 447-7022
Telephone: (202) 447-7021

VS-APHIS-USDA
Room 324-E, Administration Building
12th and Independence Avenue, SW.
Washington, DC 20250
Telecopier: (202) 472-5686
Telemail: BBUISCH
Telephone: (202) 447-7593

Benjamin Waite (Participating Agency Servicing Agreement (PASA))
Science and Technology
Agency for International Development
Room 420
Washington, DC 20523
Telephone: (703) 235-8877

Thomas B. O'Connell
Foreign Affairs Officer, FAS (On Assignment to APHIS)
Room 1624, South Building
12th and Independence Avenue, SW.
Washington, DC 20250
Telephone: (202) 447-5415

Hyattsville, Maryland

Vacant (Effective May 29, 1986)
International Programs Coordinator

John H. Wyss
Assistant Director for
International Programs

May 1986

PPQ

D. Scot Campbell
Assistant Int'l Programs Coordinator

Stanley Cornelius
International Programs Specialist

Ann Mahaney
International Programs Specialist

Lead Secretary: Anne Marshall
Secretary: Janice Rokos

PPQ-APHIS-USDA
Room 654, Federal Building
6505 Belcrest Road
Hyattsville, MD 20782
Telemail: PPQ.IP.HYATTSVILLE
Telephone: (301) 436-8892

VS

James S. Smith
Chief Staff Officer
International Operations and
Screwworm Staff

James T. Cavanaugh
Staff Officer

Eugene Gill
Staff Officer

William H. Sudlow
Chief Staff Officer
Screwworm Program

George Winegar
Staff Officer

Secretaries: Debbie Smith
Mary Gillot
Fran Shields

VS-APHIS-USDA
Room 866, Federal Building
6505 Belcrest Road
Hyattsville, MD 20782
Telex: 89607 USDA ADE HVLE
Telemail: JSSMITH and JWYSS
Telephone: (301) 436-8441

LATIN AMERICA AREA

PPQ

VS

MEXICO

Mexico City, Mexico

(Area of Responsibility: Mexico, Central
and South America, and Caribbean)

(Area of Responsibility: Mexico--
Screwworm)

Ed L. Ayers, Jr.
Regional Director

James E. Novy
Co-Director

Fernando Rodriguez
Assistant Regional Director

James I. Moulthrop
Assistant Co-Director

Eric D. Hoffman
International Epidemiologist

John Nichols
Program Manager

Lead Secretary: Martha Trejo
Secretary: Laura Mundo

Secretaries: Josephina Benson
Lolita

In-Country Address:

In-Country Address:

PPQ-APHIS-USDA
Paseo de la Reforma 295
7th Floor
Col. Cuauhtemoc
Deleg. Cuauhtemoc
06500 Mexico, D.F.

VS-APHIS-USDA
Liebnitz No. 20 12^o Piso
Colonel Anzures
11590 Mexico, D.F. OR

Apartado Postal M-2890
0600 Mexico, D.F.

Mexican Origin Mail Address:

PPQ-APHIS-USDA
American Embassy
Paseo de la Reforma 305
Room 225
Col. Cuauhtemoc
Deleg. Cuauhtemoc
06500 Mexico, D.F.

PPQ

VS

U.S. Origin Mail Address:

PPQ-APHIS-USDA
P.O. Box 3087
Laredo, Texas 78041

Telemail: PPQ.IP.MEXICO
Telephone: (905) 211-0042
Extensions 3480 or 3481

Otis Handley
Acting Regional Administrative Officer

Walter Rice
Assistant Regional Administrative Officer

Secretaries: Armando Zamora
Aida Santamaria

In Country Address:

PPQ-APHIS-USDA
Escandida 110
Coyoacan
04000 Mexico, D.F.

U.S. Origin Mail Address:

PPQ-APHIS-USDA
P.O. Box 991
Brownsville, Texas 78520
Telephone: (905) 211-0042
Extensions 3161 and 3162
Direct Lines: (905) 658-8878
658-8787
554-1226

U.S. Origin Mail Address:

Mexico-U.S. Commission for the
Eradication of Screwworms
Department of State--Mexico
Washington, DC 20250
Telecopier: (905) 250-1044
Telex: 001775639
Telemail: VS.MEX.SWC
Telephone: (905) 531-8569
(905) 250-1044

PPQ

(Area of Responsibility: Mexico)

Gordon Tween
Area Director

Secretary: Martha A. Rueda

In-Country Address:

PPQ-APHIS-USDA
Escondida 110
Coyoacan
04000 Mexico, D.F.

U.S. Origin Mail Address:

APPQ-APHIS-USDA
P.O. Box 991
Brownsville, Texas 78520

Telemail:

Telephone: (905) 211-0042
Extensions 3161 or 3163
(905) 658-8878
554-1226
658-8809
658-8787

VS

(Area of Responsibility: Mexico--
Foot-and-Mouth Disease)

John Mason
Co-Director

William Schroeder
Supervisory Veterinary Medical
Officer

Kelly R. Preston
Veterinary Officer

Vacant
Veterinary Officer

Kathleen T. Baca
Administrative Officer

Secretary: Enrique Sanchez

In-Country Address:

VS-APHIS-USDA
Hegel 713
11560 Mexico, D.F. OR
Aptdo. Postal M-10078
06000 Mexico, D.F.

U.S. Origin Mail Address:

VS-APHIS-USDA-AG/AFT
c/o American Consulate
P.O. Box 3087
Laredo, TX 78044
Telex: 001774221
Telemail:
Telephone: (905) 531-2491
545-4049
531-7600

Guadalajara, Mexico

(Area of Responsibility: Oaxaca, Guerrero,
Queretaro, Guanajuato, Michoacan, Jalisco,
Colima, Morelos, Puebla, Tlaxcala, Aguos
Calientes, Nayarit, and Sinaloa).

Nathaniel Perry
Officer in Charge

Francisco Corrales
Agricultural Specialist

Secretary: Adriana Sapien

In-Country Address:

PPQ-APHIS-USDA
Aviendra de la Paz 220
Sector Juarez
44100 Guadalajara, Jalisco, Mexico

Mexican Origin Mail Address:

PPQ-APHIS-USDA
American Consulate General
P.O. Box 1-1 BIS
Guadalajara, Jalisco, Mexico

U.S. Origin Mail Address:

PPQ-APHIS-USDA
American Consulate General
P.O. Box 3088
Laredo, Texas 78401
Telephone: (36) 15-9039 or 15-1466

PPQ

VS

Hermosillo, Mexico

(Area of Responsibility: Baja California,
Baja California Sur, and Sonora)

Nicholas Gutierrez
Officer in Charge

Secretary: Graciela Barraza

In-Country Address:

PPQ-APHIS-USDA
Boulevard Rodriquez 36
Esquina Boulevard Morelos
Hermosillo, Sonora, Mexico

Mexican Origin Mail Address:

PPQ-APHIS-USDA
American Consulate-Hermosillo
P.O. Box 972
Hermosillo, Sonora, Mexico

U.S. Origin Mail Address:

PPQ-APHIS-USDA
c/o American Consulate-Hermosillo
P.O. Box 633
Brownsville, Texas 78522
Telephone: (621) 4-5987
5-4402

Matamoros, Mexico

(Area of Responsibility: Tamaulipas,
Zacatacas, Nuevo Leon, Coahuila,
and Chihuahua)

Alberto Suarez
Officer in Charge

Secretary: Rosario Quintero

In-Country Address:

PPQ-APHIS-USDA
Reforma 28
Col. San Francisco
Matamoros, Tamps., Mexico

Mexican Origin Mail Address:

PPQ-APHIS-USDA
American Consulate-Matamoros
P.O. Box 451
Matamoros, Tamps., Mexico

U.S. Origin Mail Address:

PPQ-APHIS-USDA
P.O. Box 991
Brownsville, Texas 78520
Telephone: (891) 21-587 or 32-256

Merida, Mexico

(Area of Responsibility: Yucatan, Quintana
Roo, and Campeche)

Mario Sanchez
Agricultural Specialist

Secretary:

In-Country Address:

PPQ-APHIS-USDA
American Consulate-Merida
Paseo Montejo 453
9700 Merida, Yucatan, Mexico

Mexican Origin Mail Address:

PPQ-APHIS-USDA
American Consulate-Merida
P.O. Box 231
9700 Merida, Yucatan, Mexico

U.S. Origin Mail Address:

PPQ-APHIS-USDA
P.O. Box 3087
Laredo, Texas 78044
Telephone: (992) 562-19

Monterrey, Mexico

(Area of Responsibility: Mexican Fruit Fly
Rearing and Sterilization Facility)

Leonard Spishakoff
Officer in Charge

Secretary: Angeles de Anda

In-Country Address:

PPQ-APHIS-USDA
Madero Poniente 1448
64000 Monterrey, N.L., Mexico

Mexican Origin Mail Address:

PPQ-APHIS-USDA
P.O. Box 3926
64000 Monterrey, N.L., Mexico

U.S. Origin Mail Address:

PPQ-APHIS-USDA
P.O. Box 3098
Laredo, Texas 78044
Telephone: (83) 75-7550

Tapachula, Mexico

(Area of Responsibility: Chiapas and
Mediterranean Fruit Fly Rearing and
Sterilization Facility)

Lynn Stevens
Co-Director of Rearing Facility

Thomas Andre
Officer in Charge

Secretary: Nora Garundo

In-Country Address:

PPQ-APHIS-USDA
2 Avenida Sur No. 5
3rd Floor, Mexico
30700 Tapachula, Chiapas, Mexico

Mexican Origin Mail Address:

PPQ-APHIS-USDA
P.O. Box 231
30700 Tapachula, Chiapas, Mexico

U.S. Origin Mail Address:

PPQ-APHIS-USDA
P.O. Box 991
Brownsville, Texas 78520
Telephone: (962) 5-1374

Tuxtla Gutierrez, Mexico

(Area of Responsibility: Mexico--Screwworm)

Raul Marroquin
Sub-Director, Plant Operations

Don Bailey
Sub-Director, Production

PPQ

VS

Pat Cooney
Acting Administrative Officer

Secretary:

In-Country Address:

Division of Plant Operations
Mexico-U.S. Screwworm Program
Apartado Postal 544
Tuxtla Gutierrez, Chiapas, Mexico

U.S. Origin Mail Address:

VS-APHIS-USDA
P.O. Box 3087
Laredo, Texas 78044
Telephone: 52-961-23937

Veracruz, Mexico

(Area of Responsibility: Veracruz, Tabasco,
Hidalgo, Tlaxcala, and San Luis Potosi)

Vacant
Officer in Charge

Secretary: Jaqueline Violante

In-Country Address:

PPQ-APHIS-USDA
Independencia 960 Altos
Veracruz, Ver., Mexico

Mexican Origin Mail Address:

PPQ-APHIS-USDA
P.O. Box 509
91700 Veracruz, Ver., Mexico

U.S. Origin Mail Address:

PPQ-APHIS-USDA
P.O. Box 3087
Laredo, Texas 78041
Telephone: (293) 60-878

CHILE
Santiago, Chile

(Area of Responsibility: Argentina, Brazil,
Chile, Paraguay, and Uruguay)

Jerry Fowler
Area Director

John Gilbert
Officer in Charge

Secretary: Paulina Villavicencio

In-Country Address:

PPQ-APHIS-USDA
American Embassy
Corina Building
1343 Agustinas
Santiago, Chile

U.S. Origin Mail Address:

PPQ-APHIS-USDA
American Embassy, Santiago
APO Miami 34033
Telemail: PPQ.IP.CHILE
Telephone: (562) 71-0133
Extension 313

COLOMBIA
Bogota, Colombia

(Area of Responsibility: Foot-and-
Mouth Disease Program)

Vacant
Senior Technical Advisor

Cecilia De Rojas
Assistant Administrative Officer

Secretary: Vacant

In-Country Address:

Proyecto ICA-USDA
Carrera 13 No. 37-37
Oficina 704
Bogota, Colombia

U.S. Origin Mail Address:

ICA-USDA FMD Program
American Embassy-Bogota
APO Miami 34038
Telemail:
Telephone: (572) 327035

COSTA RICA
San Jose, Costa Rica

(Area of Responsibility: Costa Rica and
Nicaragua--Foot-and Mouth Disease
and Rinderpest)

Steve C. Smith
Veterinary Attache

In-Country Address:

VS-APHIS-USDA
American Embassy
Avenida 3 y Calle 1
San Jose, Costa Rica

U.S. Origin Mail Address:

American Embassy-San Jose
APO Miami 34020
Telemail
Telephone: (506) 379927

PPQ

VS

DOMINICAN REPUBLIC
Santo Domingo, Dominican Republic

(Area of Responsibility: Bermuda, Bahamas,
and Caribbean Countries)

Robert Strong
Area Director

Secretary: Sonia Richiez

In-Country Address:

PPQ-APHIS-USDA
American Embassy
Esquina de calle Cesar Nicolas
Penson Y
Calle Leopoldo Navarro
Santo Domingo, Republica Dominicana

U.S. Origin Mail Address:

PPQ-APHIS-USDA
American Embassy-Santo Domingo
APO Miami 34041
Telemail:
Telephone: (809) 685-9780
688-3184

(Area of Responsibility: Caribbean)

David W. Anderson
Veterinary Attache

Secretary:

In-Country Address:

VS-APHIS-USDA
American Embassy
Calle Cesar Nicolas Penson Y
Calle Leopoldo Navarro
Santa Domingo, Republica Dominica

U.S. Origin Mail Address:

Veterinary Attache
American Embassy-Santo Domingo
APO Miami 34041-0008
Telemail:
Telephone: (809) 682-9780
688-3184

BERMUDA
Hamilton, Bermuda

(Area of Responsibility: Bermuda)

Thomas Billak
Officer in Charge

In-Country Address:

PPQ-APHIS-USDA
St. Georges Civil Air
Terminal, Ferry Beach
Hamilton, Bermuda

PPQ
U.S. Origin Mail Address:

PPQ-APHIS-USDA
St Georges Civil Air
Terminal, Ferry Beach
CMR Box 3041
FPO New York 09560
Telephone: (809) 293-2752

BAHAMAS
Freeport, Bahamas

(Area of Responsibility: Freeport Area)

Carolyn Cohen
Officer in Charge

In-Country Address:

PPQ-APHIS-USDA
Freeport International Airport
P.O. Box F-2625
Freeport, Bahamas BWI

U.S. Origin Mail Address:

Same as in country.
Telephone: (809) 352-9225

Nassau, Bahamas

(Area of Responsibility: Bahamas)

Rod Coan
Assistant Area Director

In-Country Address:

PPQ-APHIS-USDA
American Embassy
Nassau, Bahamas BWI

PPQ

VS

U.S. Origin Mail Address:

PPQ-APHIS-USDA
American Embassy
P.O. Box N-8197
Nassau, Bahamas BWI
Telephone: (809) 327-7127

U.S. Origin BULK Mail Address:

PPQ-APHIS-USDA
American Embassy
Nassau, Bahamas BWI
FPO Miami 34058

HAITI
Port-au-Prince

(Area of Responsibility: Haiti)

David Tollett
Officer in Charge

In-Country Address:

PPQ-APHIS-USDA
American Embassy
Harry Truman Boulevard
Port-au-Prince, Haiti

U.S. Origin Mail Address:

Same as above.
Telephone: (5091)20-200

PPQ

VS

Kingston, Jamaica

(Area of Responsibility: Jamaica (PASA))

Ralph Iwamoto
Officer in Charge

Secretary:

In-Country Address:

PPQ-APHIS-USDA
c/o R. Mangrich
Assistant Development Officer, Jamaica
United States Embassy
2 Oxford Road
Kingston 5, Jamaica

U.S. Origin Mail Address:

PPQ-APHIS-USDA
Kingston (AID-ARTO)
Department of State
Washington, DC 20250
Telephone: (809) 92-9483

GUATEMALA

Guatemala City, Guatemala

(Area of Responsibility: Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama)

(Area of Responsibility: Guatemala and El Salvador--Foot-and-Mouth Disease and Rinderpest)

Ed J. Stubbs
Area Director

Rafael Garcia
Veterinary Attache

Pat Gomes
Assistant Area Director

Secretary:

PPQ

VS

Marie Sebrechts
Public Affairs Specialist (PPQ and VS)

Secretary: Lucy Cabrera

In-Country Address:

PPQ-APHIS-USDA
American Embassy
Avenida La Reforma 7-1
Zona 10
Guatemala City, Guatemala

U.S. Origin Mail Address:

PPQ-APHIS-USDA
American Embassy-Guatemala City
APO Miami 34024
Telemail: PPQ.IP.Guatemala
Telephone: (502) 231-3186
Embassy Line: (502)
231-1541 Extension 313

(Area of Responsibility: Methods
Development Laboratory)

Derrell L. Chambers
Station Supervisor

In-Country Address:

Same as above.

U.S. Origin Mail Address:

Same as above.
Telephone: (502) 231-6454
Extension 5

In-Country Address:

VS-APHIS-USDA
American Embassy
Avenida La Reforma 7-1
Zona 10
Guatemala City, Guatemala

U.S. Origin Mail Address:

American Embassy-Guatemala City
APO Miami 34024
Telemail:
Telephone: (502) 232-4030

HONDURAS
Tegucigalpa, Honduras

(Area of Responsibility: Honduras and
Belize--Foot-and-Mouth Disease and
Rinderpest)

Percy Hawkes
Veterinary Attache

In-Country Address:

VS-APHIS-USDA
American Embassy
Avenida la Paz
Tegucigalpa, Honduras

U.S. Origin Mail Address:

American Embassy-Tegucigalpa
APO Miami 34022
Telephone: (504) 325406

PANAMA
Panama City, Panama

(Area of Responsibility: Foot-and-
Mouth Disease and Rinderpest)

Robert E. Reichard
Co-Director

Floyd M. Jones
Supervisory Veterinary Medical Officer

Felix Reta
Administrative Officer

PPQ

VS

In-Country Address:

VS-APHIS-USDA
American Embassy
Apartado 6959
Panama City, Panama

U.S. Origin Mail Address:

Panama-U.S. Commission for the
Prevention of FMD
American Embassy-AGRI
Box E
APO Miami 34002
Telephone: (507) 636022 or
636427
636336
636851

PERU
Lima, Peru

(Area of Responsibility: Peru)

Vacant
Officer in Charge

Secretary: Maria Yrigoyen Blengeri

In-Country Address:

PPQ-APHIS-USDA
American Embassy
Los Pubia 306, Dpto. 703
Lima 27, Peru

U.S. Origin Mail Address:

PPQ-APHIS-USDA
American Embassy, Lima
APO Miami 34031
Telephone: (5114) 22-08-10

PPQ

VS

VENEZUELA
Caracas, Venezuela

(Area of Responsibility: Bolivia, Colombia,
Ecuador, French Guiana, Guyana, Peru,
Suriname, and Venezuela)

Herbert L. Murphy
Area Director

Secretary:

In-Country Address:

PPQ-APHIS-USDA
American Embassy
Av. Fco. de Miranda, Los Palos Grandes
Caracas, Venezuela

U.S. Origin Mail Address:

PPQ-APHIS-USDA
American Embassy Caracas
APO Miami 34037-5000
Telephone: 284-6111
Extension 428

EUROPE, NEAR EAST, AND AFRICA AREA

PPQ

VS

ITALY
Rome, Italy

(Area of Responsibility: Europe and Africa)

Claude J. Nelson
VS European-African Representative

Secretary:

In-Country Address:

American Embassy
119-A Via Veneto
00187 Rome, Italy

U.S. Origin Mail Address:

Veterinary Services
ERRO-APHIS-USDA
American Embassy-Rome
APO New York 09794
Telephone: 396-4674-2-131 or 148

NETHERLANDS
The Hague, Netherlands

(Area of Responsibility: Africa, Europe, Near East, Union of Soviet Socialist Republics, Federal Republic of Germany and German Democratic Republic)

Alvin K. Chock
Regional Director

M. (Tilly) Micsky
Administrative Assistant

Belinda Noordam
Clerk-Typist

In-Country Address:

PPQ-APHIS-USDA
Nassauplein 40a
2585 ED The Hague, Netherlands

U.S. Origin Mail Address:

PPQ-APHIS-USDA
American Embassy, The Hague
APO New York 09159-7021
Telex: 34282 (APHIS NL)
Telemail: PPQ.IP.NETHERLANDS
Telephone: (31-70) 63-3970
(31-70) 62-4911 Extension 279
American Embassy

(Area of Responsibility: Albania, Algeria, Andorra,
Bahrain, Bulgaria, Cyprus, Czechoslovakia, Egypt,
Greece, Hungary, Iraq, Italy, Jordan, Kuwait,
Lebanon, Libya, Malta, Morocco, Oman, Poland,
Portugal, Qatar, Romania, Saudi Arabia, Spain,
Syria, Tunisia, Turkey, United Arab Republic,
Vatican City, Yemen Arab Republic, The People's
Democratic Republic of Yemen, Yugoslavia, and
Guinea-Bissau)

John Franklin
Area Director

In-Country Address:

Same as above.

U.S. Origin Mail Address:

Same as above.
Telex: Same as above.
Telemail: " " "
Telephone: " " "

Hillegom, Netherlands

(Area of Responsibility: Austria, Belgium,
Denmark, Greenland, Finland, France,
Iceland, Irish Republic, Israel,
Liechtenstein, Luxembourg, Monaco,
Netherlands, Norway, Republic of
South Africa, Sweden, Switzerland, and
United Kingdom)

T. H. Russell, Jr.
Area Director

Robert Hashimoto
Officer in Charge

Clerk: Yvonne H.C. Dobbe

In-Country Address:

PPQ-APHIS-USDA
Parklaan 5
2181DB
Hillegom, Netherlands

U.S. Origin Mail Address:

PPQ-APHIS-USDA
POSTBUS 206
2180 AE Hillegom, Netherlands
Telephone: 31-2520 or 32-2299

GERMANY

Mannheim, Germany

(Area of Responsibility: European Command--
U.S. Armed Forces)

Jack Reynolds
Military Agricultural Advisor

In-Country Address:

Executive Agency, 42nd MP Group
Taylor Kaserne, Building 333
6800 Mannheim 41, F.R. Germany

U.S. Origin Mail Address:

42nd MP Group
APO New York 09086-5374
Telephone: 49 (621) 730-8381 or 6940

AFRICA

Guinea Bissau, Africa

(Area of Responsibility: PASA)

Carl Castleton
Project Leader

In-Country Address:

U.S. Embassy
C.P. 297
Guinea Bissau, Africa

U.S. Origin Mail Address:

Department of State-Bissau
Washington, DC 20250
Telephone: 21-2816 or 21-2817

ASIA AND PACIFIC AREA

PPQ

VS

AUSTRALIA
Canberra, Australia

(Area of Responsibility: Australia, New
New Guinea, New Zealand, and the
South Pacific Commission Countries)

Marshall Kirby
Area Director

Secretary: Margaret Tapper

In-Country Address:

PPQ-APHIS-USDA
c/o Agricultural Counselor
American Embassy
Moonah Place, Yarralumla
Canberra, A.C.T. 2600

U.S. Origin Mail Address:

PPQ-APHIS-USDA
c/o Agricultural Counselor
American Embassy-Canberra
APO San Francisco 96404
Telephone: 61-62-731526

PPQ

VS

INDIA
New Delhi, India

(Area of Responsibility: Afghanistan,
Bangladesh, Burma, India, Iran, Nepal,
Pakistan, and Sri Lanka)

Shannon W. Wilson (Retiring 5-29-86)
Area Director

Leland White (Effective 4-27-86)
Area Director

Subash Mahay
Agriculturist

Secretary: H. S. Bhogal

Driver: Johnson John

In-Country Address:

PPQ-APHIS-USDA
American Embassy
Shanti Path, Chanakyapuri 21
New Delhi, India

U.S. Origin Mail Address:

PPQ-APHIS-USDA
New Delhi Agriculture
Department of State
Washington, DC 20520

JAPAN
Tokyo, Japan

(Area of Responsibility: China, Hong Kong,
Japan, Okinawa, South Korea, and Taiwan)

Earl T. Ozaki
Area Director

Secretary: Hiroko Kani

In-Country Address:

PPQ-APHIS-USDA
Agricultural Affairs Office
American Embassy Box 226
10-5, Akasaka 1-Chome
Tokyo, 107, Japan

U.S. Origin Mail Address:

PPQ-APHIS-USDA
Agricultural Affairs Office
American Embassy Box 226
APO San Francisco 96503
Telemail: PPQ.IP.JAPAN
Telephone: 813-583-7141
Extension 7217

PHILIPPINES
Manila, Philippines

(Area of Responsibility: Indonesia,
Malaysia, Philippines, Singapore,
and Thailand)

Joseph Karpati
Area Director

Secretary: Evelyn B. Elgincolin

Driver: Jose Ignacio

(Area of Responsibility: Far East
and Oceania)

Hans J. Seyffert
Veterinary Attache

Secretary: Evelyn B. Elgincolin

PPQ

In-Country Address:

PPQ-APHIS-USDA
American Embassy
1201 Roxas Boulevard
Manila, Philippines

U.S. Origin Mail Address:

PPQ-APHIS-USDA
American Embassy-Manila
APO San Francisco 96528
Telemail: PPQ.IP.MANILA
Telephone: 63-2-521-7116
Extensions 2178 and 2550

VS

In-Country Address:

PPQ-APHIS-USDA
American Embassy
1201 Roxas Boulevard
Manila, Philippines

U.S. Origin Mail Address:

U.S. Embassy-Manila
APO San Francisco 96528

Telephone: 63-2-521-7116
Extensions 2178 and 2550

FOREIGN SERVICE PERSONNEL SERVICING U.S. ROTATIONAL ASSIGNMENTS

Loyce Roberson, Southeastern Region
Joan Sills, Western Region

DIRECTORY CHANGES

To make changes (whether for PPQ or VS), please make a photocopy of the page, mark the changes on that copy, and send to:

Ann Mahaney
PPQ-APHIS-USDA
Room 654, Federal Building
6505 Belcrest Road
Hyattsville, MD 20782

How to use this chart:

The bold number following the country name is the "Country Code."

Bold numbers beside cities are "City Codes."

The number to the right of the country name is the time difference

TD = Time Difference from Eastern Standard Time

Dialing Direct to other countries may be available in your area. Ask your C&P Business Office to find out if it is.

If it is available an International Access Code is needed before you dial your call. Ask your long distance company for the code.

For example: To place a call to Buenos Aires, Argentina, dial:

International Access Code Country Code City Code
+ 54 + 1

+ Local Number

	TD		TD
American Samoa 684	- 6	El Salvador 503	- 1
Andorra 33 All points 078	+ 6	Fiji 679	+ 17
Argentina 54	+ 2	Finland 358 Helsinki 0	+ 7
Buenos Aires 1 Cordoba 51		France 33 Bordeaux 58 Marseille 91 Nice 93 Paris 1	+ 6
Australia 61	+ 14	French Antilles 596	+ 1
Melbourne 3 Sydney 2		French Polynesia 689	- 5
Austria 43 Innsbruck 5222 Vienna 222	+ 6	German Dem. Rep. 37	+ 6
Bahrain 973	+ 8	Germany Fed. Rep. Of 49 Berlin 30 Frankfurt 611 Munich 59	+ 6
Belgium 32 Antwerp 3 Brussels 2 Ghent 91	+ 6	Greece 30 Athens 1 Rhodes 241	+ 7
Belize 501 Belize City	- 1	Guam 671	+ 15
Bolivia 591 La Paz 2 Santa Cruz 33	+ 1	Guatemala 502	- 1
Brazil 55 Brasilia 61 Rio de Janeiro 21 Sao Paulo 11	+ 2	Guatemala City 2	
Chile 56 Santiago 2 Valparaiso 31	+ 2	Guyana 592 Georgetown 2	+ 2
Colombia 57 Bogota Cali 3	0	Haiti 509 Port Au Prince 1	0
Costa Rica 506	- 1	Honduras 504	- 1
Cyprus 357	+ 7	Hong Kong 852	+ 13
Nicosia 21		Hong Kong 5 Kowloon 3	
Denmark 45	+ 6	Iceland 354 Akureyn 6 Hafnarfjorour 1 Keflavik 2	+ 5
Aalborg 8 Copenhagen 1 or 2		Indonesia 62 Jakarta 21	+ 12
Ecuador 593 Cuenca 7 Quito 2	0		

	TD		TD
Iran 98 Teheran 21	+ 85	Netherlands 31	+ 6
Iraq 964 Baghdad 1	+ 8	Amsterdam 20 The Hague 70	
Ireland 353 Dublin 1 Galway 91 Cork 21	+ 5	Netherlands Antilles 599 Aruba 8	+ 1
Israel 972 Haifa 4 Jerusalem 2 Tel Aviv 3	+ 7	New Caledonia 687	+ 16
Italy 39 Florence 55 Naples 81 Rome 6 Venice 41	+ 6	New Zealand 64	+ 18
Ivory Coast 225	+ 5	Auckland 9 Wellington 4	
Japan 81 Hiroshima 92 Tokyo 3 Yokohama 45	+ 14	Nicaragua 503	- 1
Kenya 254 Nairobi 2	+ 8	Managua 2	
Korea 82 Rep of Pusan 51 Seoul 2	+ 14	Nigeria 234 Lagos 1	+ 6
Kuwait 965	+ 8	Norway 47 Bergen 5 Oslo 2	+ 6
Liberia 231	+ 5	Panama 507	0
Libya 218 Tripoli 21	+ 6	Papua New Guinea 675	+ 15
Liechtenstein 41 All Points 75	+ 6	Paraguay 595	+ 2
Luxembourg 352	+ 6	Asuncion 21 Pilar 86	
Malaysia 60	+ 13	Peru 51 Arequipa 54 Lima 14	0
Kuala Lumpur 3		Philippines 83	+ 13
Mexico 52 Mexico City 5 Tijuana 66	- 1	Manila 2	
Monaco 33 All Points 93	+ 8	Portugal 351	+ 6
		Lisbon 1	
		Qatar 974	+ 9
		Romania 40 Bucurest 0	+ 7
		San Marino 39	+ 6
		All Points 541	
		Saudi Arabia 966	+ 8
		Riyadh 1 Medina 4	

	TD		TD
Senegal 221	+ 5	United Arab Emirates 971	+ 4
Singapore 65	+ 13	Abu Dhabi 2 Ajman 6 Al Ain 3 Awair 49 Dubai 4 Fujairah 70 Ras Al Khaiman 77 Sharjah 6 Umm Al Quwain 6	
South Africa 27	+ 7	United Kingdom 44	+ 5
Cape Town 21 Johannesburg 11 Pretoria 12		Belfast 232 Cardiff 222 Edinburgh 31 Glasgow 41 Liverpool 51 London 1	
Spain 34 Barcelona 3 Las Palmas (Canary Is.) 28 Madrid 1 Seville 54	+ 6	Uruguay 598 Canelones 332 Mercedes 532 Montevideo 2	+ 2
Sri Lanka 94	+ 10.5	Vatican City 39	+ 6
Kandy 8		All Points 6	
Suriname 597	+ 1	Venezuela 58	+ 1
Sweden 46 Goteborg 31 Stockholm 8	+ 6	Caracas 2 Maracaibo 61 Maracay 43	
Switzerland 41	+ 6	Yugoslavia 38	+ 6
Berne 31 Geneva 22 Lucerne 41 Zurich 1		Belgrade 11	
Taiwan 886 Tainan 6 Taipei 2	+ 13		
Thailand 66 Bangkok 2	+ 12		
Tunisia 216 Tunis 1	+ 6		
Turkey 90 Istanbul 11 Izmir 51	+ 8		
India	+ 10.5		

* City Codes not required

** Military bases cannot be dialed directly



United States
Department of
Agriculture

Agricultural
Research
Service

National
Program
Staff

Beltsville, Maryland
20705

June 13, 1986

SUBJECT: Outbreak Population Characterization Protocol

TO: R. L. Mangan
RL, Screwworm Research Project
Tuxtla Gutierrez, Mexico

Thank you for your memorandum of May 27 enclosing a proposed protocol for detection of the source of "outbreak" screwworm populations north and west of the critical line. I am impressed that we now have a plan of action that defines procedures and tests to be conducted but is still sufficiently flexible to accomodate whatever circumstances may be encountered. Should research at Tuxtla Gutierrez or Fargo develop new tests for population characterization, these, too, should be incorporated in priority order.

Unless our colleagues in APHIS-VS have any substantial objections or recommended modifications, I would concur with the protocol as proposed.

RALPH A. BRAM
National Program Leader
Insects Affecting Man & Animals
and Parasitology

cc:
C. J. Whitten
W. W. Buisch, APHIS
J. E. Novy, Screwworm Commission



United States
Department of
Agriculture

Agricultural
Research
Service

National
Program
Staff

Beltsville, Maryland
20705

August 6, 1986

SUBJECT: APHIS Research Priorities - FY 1988

TO: C. J. Whitten
Fargo, North Dakota

✓ R. L. Mangan
Tuxtla Gutierrez, Mexico

APHIS has recently provided us with their research priority needs for fiscal year 1988. Enclosed please find proposed screwworm projects in order of priority. For the most part, these priorities are consistent with items discussed at the Screwworm Research and Methods Development Planning Meetings and are currently being addressed at Tuxtla Gutierrez and Fargo.

The item on screwworm quarantine procedures (VS-III-8) is somewhat of a surprise and may, in fact, include methods development as a main component. For clarification purposes, I would suggest that Dr. Mangan specifically discuss this topic with program officials (starting with Dr. Novy) and advise me of their feelings before we initiate any new work.

RALPH A. BRAM
National Program Leader
Insects Affecting Man & Animals
and Parasitology

Enclosures

TITLE: New factory strain development (screwworm)

OBJECTIVE: To develop an acceptable strain of screwworm fly to replace the present factory strain.

WHY NEEDED: Insects reared under factory conditions tend to adapt to those conditions over a period of time which makes the insect less competitive against the native flies.

WORK PLAN: Collect, rear, and evaluate strains of screwworm flies in areas not under sterile fly dispersals. Participate in field tests of candidate strains which have been developed from field collections of screwworm eggs and larvae.

APHIS USES OF THE RESULTS: Experience has shown that the factory strain is subject to unpredictable deterioration within 1 to 2 years after being developed in the laboratory. The changes which occur in the factory strain adversely effect the sterility rate achieved with the release of sterile males. One or more replacement strains should be under development continually so when strain deterioration is detected the new strain can be introduced in the factory without delay.

PRIORITY:

I-Urgent VS-I-4

TITLE: The need to have a better understanding of the ecology and population genetics in Mexico, Central America, Panama, and the Caribbean (screwworm).

OBJECTIVE: Study of the ecology and population genetics in Mexico, Central America, Panama, and the Caribbean including mathematical modeling and tagging technology.

WHY NEEDED: In order to protect the U.S. Department of Agriculture's investment in screwworm eradication, a permanent barrier of sterile fly dispersals must be maintained at some point. Presently, the point is the Isthmus of Tehuantepec in Mexico. The cost of barrier maintenance and the risk of reinfesting Mexico and the United States can be greatly reduced by complete eradication from the Caribbean Islands and Central America so that the barrier can then be established at the Isthmus of Panama. The smaller land area there means a significant reduction in the numbers of flies and dispersal flight miles needed to hold the screwworm at bay.

WORK PLAN: Study population dynamics with field collection techniques designed to predict population levels through the year and throughout the region. The development of computer programs which will account for weather data and susceptible animal densities to suggest the concentrations of sterile flies needed for control and eradication.

APHIS USES OF THE RESULTS: By knowing how to calculate the optimum number of sterile flies per square mile needed to effect an efficacious sterility rate in the varying conditions present in the region, we can minimize total program costs.

PRIORITY:

I-Urgent VS-I-15

TITLE: Identification and characterization of environmental and genetic factors which contribute to strain deterioration, etc. (screwworm).

OBJECTIVE: Discover techniques which indicate competitive status of screwworm strains and which can be used to predict the rate of deterioration.

WHY NEEDED: The techniques of mass production apparently involve certain genetic "bottlenecks" which discriminate against characteristics which make the screwworm fly competitive when released in the field. This loss of "field competitiveness" forces program managers to use greater numbers of flies to complete program objectives. As time goes by, it costs more and more to achieve desired results.

WORK PLAN: A thorough study of present production techniques with the objective of identifying "bottlenecks" and the genetic characteristics which are changed. The development of tests to measure the rate of change in the characteristics which are identified.

APHIS USES OF THE RESULTS: Presently, the plant strain can be changed on a set schedule or when it is obvious to everyone that the strain has gone bad. Strain changes are costly and leave the program vulnerable for a short time in case outbreaks occur which would require more production quickly. If we can reduce the number of strain changes and know when a change will be needed before it is obvious, the level of protection can be maintained at a lower cost.

PRIORITY:

II-Moderately Urgent VS-II-14

TITLE: Improvement in rearing consistently high quality screwworms

OBJECTIVE: To develop improved rearing techniques including nutrition, mechanical handling, and feeding systems to produce a higher and more consistent larval weight.

WHY NEEDED: Larval weight is directly related to fly size which is apparently related to field competitiveness. All other things being equal, it is assumed that uniformly large flies are more effective than a mix of very small and very large flies.

WORK PLAN: Modification of rearing techniques to reduce "human negligence factors" which now result in a wide range of larval sizes in each "batch" of worms produced. Included would be the development of quality production tests which could be applied throughout the rearing process.

APHIS USES OF THE RESULTS: It probably would cost no more to produce the same number of more effective, high quality flies. The production of a consistently high quality fly would reduce the number of flies needed. Reduced numbers of flies needed would reduce costs.

PRIORITY:

II-Moderately Urgent VS-II-15

TITLE: Understanding of fundamental genetics of screwworms

OBJECTIVE: To apply modern genetic techniques to screwworm population characterization.

WHY NEEDED: A means of identifying a screwworm population is needed to detect possible sources of screwworm outbreaks when they occur and to predict characteristics in isolated screwworm populations which may make them resistant to the plant strain in use.

WORK PLAN: Use of most recently developed genetic engineering techniques to study and characterize the chromosome and gene variations which are present in a given screwworm population.

APHIS USES OF THE RESULTS: Costly "outbreaks" of screwworms in previously free areas have, in some cases, been suspected of being the result of sabotage by individuals looking for job security. Being able to establish this would lead to better plant security methods. Being able to predict resistant populations before we try to eradicate them would reduce delays and costs in meeting program goals.

PRIORITY:

II-Moderately Urgent VS-II-17

TITLE: Improvement in attractants used for mating assembly and oviposition

OBJECTIVE: Study of known attractants such as found in wounds, dried blood, flowers, calf navels, and presently used oviposition attractants to develop attractants which can be used (1) in traps and (2) as breeding and oviposition stimulants.

WHY NEEDED: A moderately effective attractant has been in use, but there is a need for a more specific attractant which has a wider range of action in varying conditions of terrain, temperature, humidity, etc. The present "stimulant" for breeding and oviposition in the factory is used screwworm media.

WORK PLAN: Laboratory analysis to determine the identification and concentration of biochemical substances which contribute to the attraction of screwworm in various stages of the life cycle.

APHIS USES OF THE RESULTS: A more effective attractant will assist in field trapping studies. The development of an "artificial wound attractant" will aid in measuring the sterility rates of varying sterile fly dispersals. A more effective breeding and oviposition attractant will increase brood colony production in the plant.

PRIORITY:

III-Routine VS-III-7

TITLE: Screwworm quarantine procedures

OBJECTIVE: 1) To improve methods to detect screwworm infested animals at quarantine stations. 2) To determine type of transport vehicles and loads which may carry various life cycle stages of hitchhiking screwworms. 3) To determine most effective type of insecticide to be used at quarantine stations.

WHY NEEDED: The present market route of livestock from screwworm infested areas to screwworm free areas puts a heavy strain on the quarantine facilities on highways and railroads to detect and destroy all stages of the screwworm. Some outbreaks have been traced to the transportation of animals which were checked through routine quarantine station procedures.

WORK PLAN: 1) Study new designs for animal handling facilities which would improve ability to unload, inspect, and load livestock under all conditions encountered at the present quarantine stations. 2) Research on the survivability of various life forms of screwworms under differing systems of transportation to determine if nonanimal transportation could contribute to spread of infestations. 3) Comparative laboratory and field testing of available insecticides to determine the most efficacious product to use in all species.

APHIS USES OF THE RESULTS: The Mexican field force in the part of the country north of the present barrier has been drastically reduced. We cannot rely on the remaining field personnel for the early detection of an outbreak. We must strengthen all aspects of our inspection and quarantine of livestock shipments to reduce the possibility of expensive outbreaks in the screwworm free areas.

PRIORITY:

III-Routine VS-III-8

TITLE: New formulations and methods of application for Screwworm Adult Suppression System (SWASS)

OBJECTIVE: To develop and test improved SWASS formulation to be used in selected areas of Mexico, the Caribbean, and Central America.

WHY NEEDED: SWASS has been used effectively in the drier areas of Texas and Mexico to reduce unusually high populations of screwworms so that subsequent sterile fly dispersals will be more effective. Tests have shown that the present formulation would be relatively ineffective in the humid areas of southern Mexico, in Central America, and in the Caribbean.

WORK PLAN: Studies to determine what changes in the formulation, packaging, and distribution of SWASS would be more effective in the highly humid zones which will be encountered as the program progresses.

APHIS USES OF THE RESULTS: Peculiarities of terrain, animal populations, accessibility, etc., could make some areas resistant to effective treatment with sterile flies. An improved SWASS would be an additional weapon in our fight to prevent reinfestation of the United States and Mexico and to continue eradication to Panama.

PRIORITY:

III-Routine VS-III-9



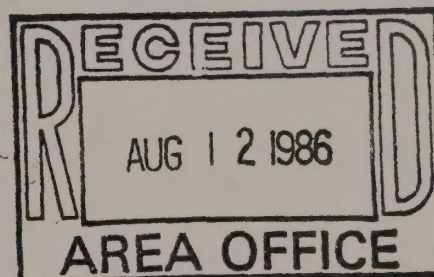
United States
Department of
Agriculture

Agricultural
Research
Service

Office of the
Administrator

Washington, D.C.
20250

August 6, 1986



Dr. B. R. Baumgardt
Chairman, ESCOP
Room 116-AGAD
Purdue University
West Lafayette, Indiana 47907

cc:

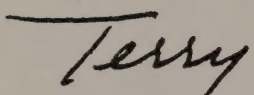
SPA Locations

Dear Bill:

This is in response to your memorandum of July 22 regarding the Animal Sciences Research Conference scheduled for Lexington, Kentucky, on November 3 and 4, 1986.

We will make sure that ARS is appropriately represented at this Conference after our scientists receive invitations to participate. Budget reductions this year are causing us to take a hard look at even those things that might seem insignificant under normal conditions, whatever that means. However, this Conference is significantly important, and I am asking our Area Directors to make sure it is given priority attention.

Sincerely,


T. B. KINNEY, JR.
Administrator

cc:
Administrator's Council ✓
J. P. Jordan

PROPOSED METHODS FOR ANALYSIS OF OUTBREAK SAMPLES

ROBERT L. MANGAN

RESEARCH ENTOMOLOGIST

USDA-ARS, TUXTLA GUTIERREZ

GOAL: TO DETERMINE THE PROBABILITY THAT SOURCE POPULATIONS OF FLIES CAUSING THE OUTBREAK IN SAN LUIS POTOSI AND TAMAULIPAS ARE FROM THE VF84 OR OTHER PRODUCTION OR EXPERIMENTAL STRAIN.

METHODS: THIS ANALYSIS DEPENDS ON COLLECTION AND MAINTENANCE OF THE MAXIMUM NUMBERS OF ISOFEMALE LINES FROM THE OUTBREAK AREAS. THESE SAMPLES WILL BE COMPARED IN THE FIRST LABORATORY GENERATION WITH THE NEWEST LINES IN THE ARS REARING FACILITY AND WITH LINES TAKEN FROM THE PLANT AT THE SAME TIME AS THOSE CAPTURED IN THE OUTBREAK AREAS.

TYPES OF RESULTS: TWO CLASSES OF RESULTS ARE EXPECTED.

1. THOSE INDICATING THE PROBABILITY THAT OUTBREAK POPULATIONS ARE SIMILAR TO "OLD LINE" REARED MATERIAL.

2. THOSE INDICATING THE PROBABILITY THAT THE OUTBREAK POPULATIONS ARE SIMILAR TO WILD CAPTURED LINES.

THESE TWO CLASSES ARE IN MANY WAYS SIMPLE INVERSES OF ONE ANOTHER, HOWEVER, CERTAIN TESTS CAN DETERMINE WITH VERY FEW SAMPLES THAT A LINE BEHAVES LIKE AN "OLD LINE" WHILE OTHERS WOULD REQUIRE HUNDREDS OF SAMPLES TO TELL THE SAME THING.

TEST DESIGNS:

1. LARVAL MORPHOLOGY: THIS TEST INVOLVES DISSECTING AND SCORING THIRD STAGE LARVAE TAKEN FROM WOUNDS. THESE LARVAE ARE THEN COMPARED BY FACTOR ANALYSIS WITH LARVAE FROM ABOUT 300 SAMPLES ALREADY ENTERED AS A DATA BASE FROM MEXICO AND THE USA. IF LARVAE FROM THE OUTBREAK AREAS ARE CONSISTANTLY DIFFERENT FROM LARVAE FROM THE SAME WOUND AND HOST TYPES, THIS WOULD SUGGEST THE POSSIBILITY THAT GENETIC-ENVIRONMENT INTERACTION FOR THE POPULATIONS IN THE OUTBREAK AREA IS DIFFERENT FROM THAT FOR NATURAL (PRE-ERADICATION) INFESTATIONS. ARS CURRENTLY HAS TECHNICIANS TRAINED IN DISSECTING AND SCORING THESE TYPES OF SAMPLES. THE DATA BASES ARE READY TO RUN IN TUXTLA, ONLY TIME FOR DISSECTION, DATA ENTRY AND ANALYSIS WILL BE REQUIRED.

2. CUTICULAR HYDROCARBONS: FOUR TYPES OF POPULATIONS WILL BE COMPARED; OUTBREAK FLIES, VF84 FLIES, OLD LINE FLIES (009, SINALOA, V81) AND NEW LINE FLIES (CHETUMAL). ALL FLIES WILL BE REARED TWO GENERATIONS ON GEL DIET, ADULTS SEXED AS VIRGINS AND FROZEN AT FOUR DAYS ADULT AGE. FEMALES WILL BE COMPARED AS TO

PRESENCE OR ABSENCE OF CERTAIN DIAGNOSTIC PEAKS WHICH DIFFER IN NEW AND OLD LINES. MALES WILL BE COMPARED AS TO AMOUNT OF THESE HYDROCARBONS. AT FOUR DAYS, OLD MALES HAVE LARGER PEAKS FOR MOST OF THE HYDROCARBONS.

3. MATING CHOICE TESTS: PAIRWISE MATING TESTS BETWEEN MALE NEW LINE (CHETUMAL) FLIES AND FEMALES OF VF84, OUTBREAK LINES, OTHER NEW LINES, AND OLD LINES WILL BE CARRIED OUT. WE HAVE SHOWN THAT NEW LINE MALES DO NOT MATE WHEN PAIRED WITH OLD LINE FEMALES, IF VF84 FEMALES ARE NOT ATTRACTIVE TO THESE MALES, AND OUTBREAK FEMALES ARE, WE HAVE EVIDENCE THAT THE OUTBREAK POPULATIONS ARE DERIVED FROM WILD FLIES. TESTS WITH OUTBREAK AND VF84 MALES PAIRED WITH THE FOUR TYPES OF FEMALES CAN BE USED TO TEST THE SIMILARITY OF THESE GENOTYPES. IF THE TWO MALE TYPES ARE ATTRACTED TO OLD LINE FEMALES WE HAVE INDICATION THAT OUTBREAK MALES HAVE GENETIC TRAITS OF OLD LINES. THESE TWO TESTS WILL NOT ALLOW POSITIVE CONCLUSIONS IF VF84 (FROM THE PLANT) FLIES ARE NOT DIFFERENT FROM NEW LINES, BUT IF VF84 MATING BEHAVIOR HAS ADAPTED TO PLANT CONDITIONS, THE RESULTS WILL BE CONCLUSIVE.

4. VIRGIN OVIPOSITION: VIRGIN FEMALES OF THE FOUR TYPES WILL BE OFFERED OVIPOSITION AT EIGHT DAYS OF ADULT AGE. WE HAVE PREVIOUSLY SHOWN IN PARTHENOGENESIS EXPERIMENTS THAT OLD LINE FEMALES OVIPOSIT MUCH MORE READILY THAN NEW LINES. THIS TEST ALSO DEPENDS ON VF84 HAVING ADAPTED TO THESE CONDITIONS, EGG STERILITY DATA IN THE PLANT SUGGESTS THAT VF84 DOES SHOW THIS ADAPTATION.

THUS, IF VF84 AND OUTBREAK VIRGIN FEMALES OVIPOSITE MORE READILY THAN NEW LINE FEMALES, WE HAVE EVIDENCE THAT OUTBREAK FEMALES SHOW PLANT ADAPTATION.

I FEEL THAT, GIVEN THE UNIFORM REARING MEDIA NOW AVAILABLE IN THE ARS LABORATORY AND THE FACT THAT WE HAVE TECHNICIANS WHO HAVE RUN THESE TYPES OF TESTS IN OUR RESEARCH PROGRAM, WE CAN PERFORM THESE TESTS AND PRODUCE RELIABLE RESULTS. I SHOULD POINT OUT THAT THESE TESTS WILL REQUIRE EXTENSIVE EFFORT OVER A MINIMUM 3 MONTH PERIOD AND WILL HEAVILY TAX THE ARS FACILITIES IN TUXTLA AND WESLACO FOR THIS PERIOD.

